INSPECTION OF KAMUT

1. PURPOSE

This directive establishes uniform procedures for the factor analysis of Kamut seed under the Agricultural Marketing Act of 1946, as amended (AMA).

2. GENERAL INFORMATION

There are no classes, subclasses or grades in Kamut seed.

Inspection of Kamut seed is on a factor only basis. The factors analyzed for are: kind of grain, test weight, moisture, dockage, shrunken and broken kernels, infestation, heating, odor, bird dropping, other animal filth, broken glass, caster beans, cockleburs, crotalaria seeds, smut, ergot, garlic, treated, stones, temperature, unknown foreign substances, heat-damaged kernels, damaged kernels, and foreign material.

The AMA regulations provides for three inspection services levels: original, appeal, and Board appeal.

Appeals. Official personnel shall perform only one appeal inspection on any original inspection service. An applicant may request an appeal inspection on any of the kinds of inspection services performed for an original inspection. For appeal inspections, the field office must analyze the sample for all of the quality factors included in the original inspection.

Board Appeals. An applicant who is dissatisfied with the original or appeal inspection results may appeal to the FGIS Board of Appeals and Review (BAR). The Board appeal shall be limited to an analysis of the file sample. When a request for a Board appeal inspection is filed, the file sample(s) and all other pertinent information shall be immediately submitted to the BAR. The field office shall act as a liaison between the BAR and the applicant.

3. PERCENTAGES

Except for ergot and kind of grain, state all percentages in whole and tenth percent. State the percentage of ergot to the nearest hundredth of a percent. State the kind of grain to the nearest whole percent. Percentages shall be rounded in accordance with FGIS procedures.

4. STANDARD ABBREVIATIONS

Use the following abbreviations in the analysis of Kamut seed:

Kamut seed		km	Cockleburs		cbur
Moisture		m	Crotalaria		crot
Dockage		dkg	Garlic bulblets		garb
Test weight per bushel		tw	Unknown foreign substance		fsub
Damaged kernels (total)		dkt	Odor		odor
Heat-damaged kernels	ht	Musty		must	
Shrunken and broken kernels		skbn	Sour		sour
Foreign material		fm	Commercially objectionable		cofo
Infested		inf	foreign odor		
Heating		htg	Smutty	smut	
Bird excreta		brdx	Stones		ston
Animal filth		Anfl	Treated		tret
Castor beans		cstb			

5. BASIS OF DETERMINATION

How factors are determined:

Table 1. Basis of Determination

Lot as a Whole	Factors Determined Before the Removal of Dockage	Factors Determined After the Removal of Dockage	Factor Determined After the Removal of Dockage and Shrunken and Broken Kernels
Heating Infested Odor	Garlicky Heating Infested Kind of Grain Moisture Odor Odor (smut) Other unusual conditions	Ergot Kind of grain Odor Shrunken & broken kernels Smut Stones Test weight Treated	Damaged kernels (total) Foreign material Heat-damaged kernels

6. DEFINITION OF KAMUT SEED

Kamut (Triticum Polonium) shall consist of 50.0 percent or more of whole Kamut seed before the removal of dockage.

Whole kernels are kernels with three-fourths or more of the kernel present.

Basis of Determination. Normally, a visual appraisal of the sample is sufficient to determine if it meets the definition of Kamut seed. However, if analysis is necessary, make the determination after the removal of dockage on a portion of approximately 50 grams.

7. INFESTATION

Kamut seed that is infested with live weevils or other live insects injurious to stored grain according to procedures prescribed in FGIS instructions.

The presence of any live weevil or other live insect injurious to stored grain indicates the probability of infestation and warns that the Kamut seed must be carefully examined to determine if it is infested. In such cases, examine the work and file sample before reaching a conclusion as to whether or not the Kamut seed is infested. Do not examine the file sample if the work portion is insect free.

Live weevil shall include rice weevils, granary weevils, maize weevils, cowpea weevils, and lesser grain borers. Other live insects injurious to stored grain shall include grain beetles, grain moths, and larvae. (See Grain Inspection Handbook, Book II, Chapter 1, Section 1.2, “Visual Grading Aids for Insects Commonly Found in Grain.”)

Basis of Determination. Determine infestation on the lot as a whole and/or the sample as a whole. For insect tolerances, see Table 2.

Table 2.

INSECT INFESTATION	
Samples meeting or exceeding any one of these tolerances are infested: **2 lw, or 1 lw + 1 oli, or 2 oli**	
I.	1,000-gram Representative Sample 1/ (+ file sample if needed) - Submitted Samples - Probed Lots - D/T Sampled Landcarriers
II.	Lot as a Whole (stationary) - Probed Lots (at time of sampling)
III.	Online sample (In-motion) 2/ - Railcars Under Cu-Sum - Subsamples for Sacked Grain Lots - Components for Bargelots 3/ - Components for Shiplots 3/
1/ Examine work portion and file sample if necessary. Do not examine file sample if work portion is insect free. 2/ Minimum sampling rate is 500 grams per 2,000 bushels. 3/ Minimum component size is 10,000 bushels. key: lw = live weevil oli = other live insects injurious to stored grain	

Certification. When applicable, record the word "infested" on the work record and the certificate.

8. HEATING

Kamut developing a high temperature from excessive respiration is considered heating. Heating Kamut, in its final stages, will usually have a sour or musty odor. Care should be taken not to confuse Kamut that is heating with Kamut that is warm and moist because of storage in bins, railcars, or other containers during hot weather.

Basis of Determination. Determine heating on evidence obtained at the time of sampling.

Certification. When heating is detected, note on the pan ticket and certificate.

9. ODOR

Basis of Determination. Determine odor on evidence obtained at the time of sampling or on the sample either before or after the removal of dockage.

Table 3.

ODOR CLASSIFICATION EXAMPLES		
Sour	Musty	Commercially Objectionable Foreign Odors
Boot Fermenting Insect (acrid) Pigpen	Ground Insect Moldy	Animal hides Decaying animal & vegetable matter Fertilizer Fumigant Insecticide Oil products Skunk Smoke Strong weed

Commercially Objectionable Foreign Odors. Commercially objectionable foreign odors are odors, except smut and garlic odors, foreign to grain that render it unfit for normal usage.

Fumigant or insecticide odors are considered commercially objectionable foreign odors if they linger and do not dissipate. When a sample of Kamut contains a fumigant or insecticide odor that prevents a determination as to whether any other odor(s) exists, apply the following guidelines:

a. Original Inspections. Allow the work portion to aerate in an open container for 4 hours, or less, if the odor dissipates in less time.

b. Reinspections, Appeal, and Board Appeal Inspections. Allow unworked file samples and new samples to aerate in an open container for 4 hours, or less, if the odor dissipates in less time. The 4-hour aeration requirement does not apply when the original work portion was aerated and retained as the final file.

Consider the sample as having a commercially objectionable foreign odor if the fumigant or insecticide odor persists based on the above criteria.

Final Determination. The inspector(s) is responsible for making the final determination for all odors. A consensus of experienced inspectors is used, whenever possible, on samples containing marginal odors. The consensus approach is not required if no odor or a distinct odor is detected.

Certification. If present, record the words "Musty," "Sour," or "Commercially Objectionable Foreign Odor" on the work record and the certificate.

10. ANIMAL FILTH, GLASS, AND UNKNOWN FOREIGN SUBSTANCES

Basis of determination. Determine animal filth, glass, and unknown foreign substances on the basis of the samples as a whole (1-1/8 to 1-1/4 quarts).

Certification. Record the number of pieces of animal filth, glass, and unknown foreign substances on the work record and the certificate. Record count factors to the nearest whole number.

11. GARLIC BULBLETS

Basis of Determination. Determine the number of garlic bulblets on the sample before the removal of dockage (approximately 1000 grams), except in those cases where the garlic bulblet count is in excess of 10 green bulblets. When garlic bulblets are in excess of 10 green bulblets, use a portion of 250 grams. After determining the count of bulblets on the 250-gram portion, multiply the count by 4 to obtain the equivalent number of bulblets in 1,000 grams. (Reference Interpretive Line Slides OF-13.0 and OF-13.1.)

Characteristics of Bulblets.

a. Green garlic bulblets are bulblets which have retained all of their husks intact.

b. Dry or partly dry garlic bulblets are bulblets which have lost all or part of their husks. Consider bulblets with cracked husks as dry.

NOTE: Three dry or partly dry garlic bulblets are equal to one green bulblet.

Garlic bulblets function as dockage or foreign material.

Certification. Record the number of garlic bulblets in whole and thirds, on the work record and the certificate.

12. MOISTURE

Water content in grain as determined by an approved device according to procedures prescribed in FGIS instructions.

Basis of Determination. Determine moisture before the removal of dockage on a portion of exactly 250 grams.

The procedures for performing a moisture determination are described in Book II, Chapter 1, Section 1.10.

NOTE: Use the calibration setting for the Durum Chart.

Certification. Record the percent of moisture on the work record and the certificate to the nearest tenth percent.

13. DOCKAGE

All matter other than Kamut that can be removed from the original sample by use of an approved device according to procedures prescribed in FGIS instructions. Also, underdeveloped, shriveled, and small pieces of Kamut kernels removed in properly separating the material other than Kamut and that cannot be recovered by properly rescreening or recleaning.

Basis of Determination. Determine dockage on a portion of 1,000 to 1,050 grams of the original sample.

When performing the dockage determination, check the material that passes over the riddle for threshed or unthreshed kernels and sprouted kernels of Kamut.

Threshed and sprouted kernels that pass over the riddle are not considered dockage. Return all such kernels to the dockage-free sample. Threshed kernels of Kamut are kernels with either no glumes attached, or not more than one glume attached.

Unthreshed kernels that pass over the riddle are considered dockage. Unthreshed kernels are kernels with more than one glume attached. (Reference: Interpretive Line Slide No. OF-30.0.)

CHART 1 - PROCEDURE FOR DETERMINING DOCKAGE

Carter Dockage Tester Setup.

a. Set air control on 4 and the feed control to 6.

b. In the riddle carriage, use No. 25 plastic riddle for Kamut. If the predominating grain is Kamut, use the No. 25. If kernels are approximately the size of Durum wheat kernels, use the No. 25; otherwise use the No. 2 riddle.

c. Use no sieve in the top sieve carriage.

d. Insert No. 2 sieve in the middle and bottom sieve carriages.

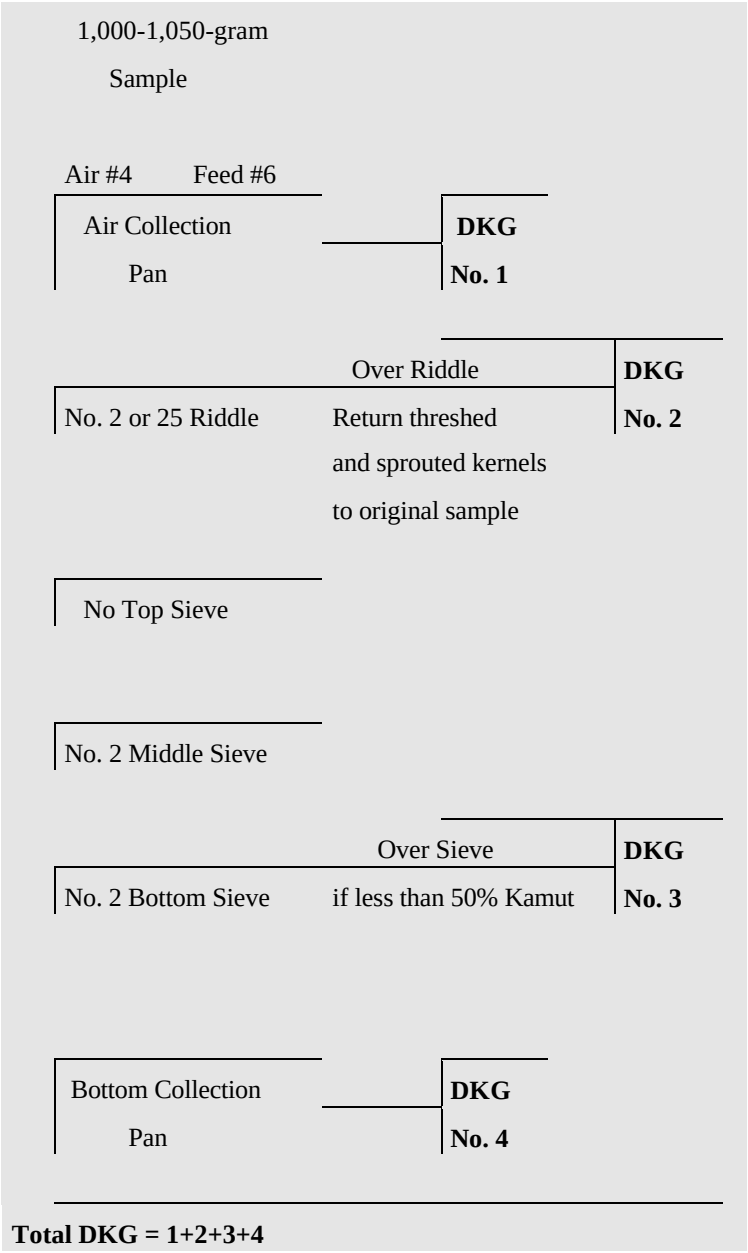
e. Start the Carter Dockage Tester and pour sample into feed hopper.

f. Aspirated material in air collection pan is dockage.

g. Material over the riddle, except for threshed and sprouted kernels, is dockage. Threshed kernels do not have more than one glume attached (Ref. ILS No. OF-30.0). Place threshed and sprouted kernels in the cleaned Kamut (over middle sieve).

h. Material passing over the bottom sieve is dockage if it contains less than 50 percent (by weight) of wheat kernels. If 50 percent or more of wheat kernels pass over the bottom sieve, return the material to the cleaned Kamut.

i. Material in bottom collection pan is dockage.



To avoid repeating operations, check the dockage for garlic bulblets, infestation, and other factors (except stones).

Certification. Record the word "Dockage" and the percentage to the nearest tenth percent on the work record and the certificate. If the dockage is less than one-tenth percent, report as "Dockage 0.0 percent."

14. TEST WEIGHT

The weight per Winchester bushel (2,150.42 cubic inches) as determined using an approved device according to procedures prescribed in FGIS instructions.

Basis of Determination. Determine test weight on a dockage-free portion of sufficient quantity to overflow the kettle.

The procedures for performing the test weight determination and available services are described in Book II, Chapter 1, Section 1.11.

Certification. Record test weight results on the work record as displayed on the electronic scale or in whole and tenth pounds to the nearest tenth pound. Record the test weight on the certificate in whole and tenth pounds to the nearest tenth pound. If requested, convert the pounds per bushel (lbs./bu) result to kilograms per hectoliter (kg/hl) using the following formulas: for Kamut seed, [1.292 x lbs./bu] + 0.630 = kg/hl.

15. PROCESSING THE WORK SAMPLE

At this point, all tests required to be performed prior to the removal of dockage have been made and the percentage of dockage has been determined. Also, the sample has been test weighed and examined for certain criteria. Now the work sample is ready to be divided into fractional portions for other determinations required after the removal of dockage. The following chart and Table 4 illustrate how the sample is divided into fractional parts using the Boerner divider.

CHART 2 - DIVIDING THE WORK SAMPLE

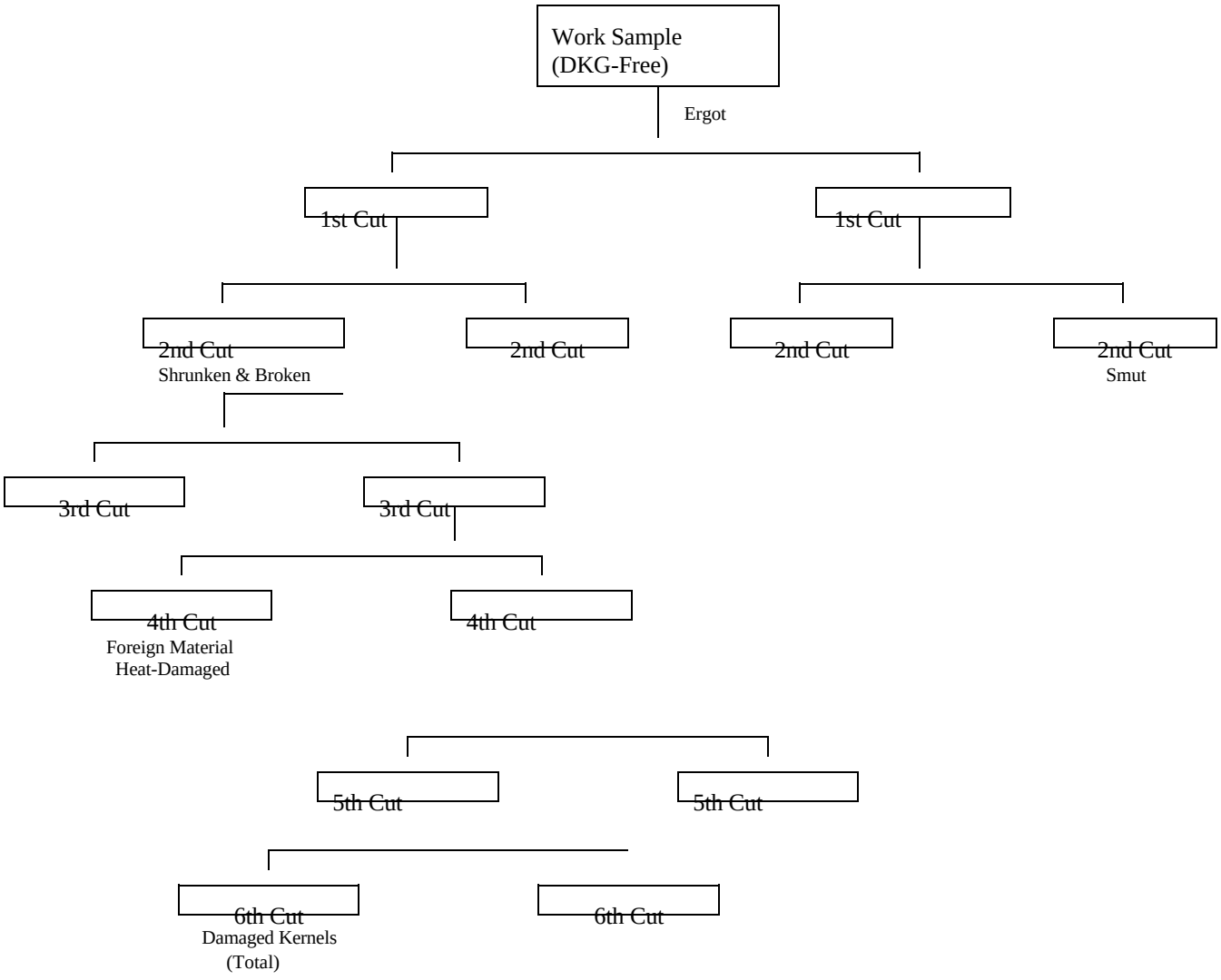


Table 4.

APPROXIMATE ANALYTICAL PORTION SIZES	
Factors	Grams
Ergot	1,000
Shrunken & broken kernels	250
Smut	250
Class	15
Damaged kernels (total)	15
Foreign material	50
Heat-damaged kernels	50

16. ERGOTY KAMUT

Kamut that contains more than 0.05 percent of ergot.

Ergot is a hard, reddish-brown or black grain-like mass of certain parasitic fungi that replaces the kernels of Kamut. (Reference: Interpretive Line Slide No. OF-12.0.)

Basis of Determination. Determine ergot on a dockage-free portion of 1,000 grams. Ergot applies in the determination of ergot and also functions as foreign material.

Certification. Upon request, show the percentage of ergot to the nearest hundredth percent on the work record and the certificate.

17. LIGHT SMUTTY AND SMUTTY KAMUT

Light Smutty. *Kamut that has an unmistakable odor of smut, or which contains, in a 250-gram portion, smut balls, portions of smut balls, or spores of smut in excess of a quantity equal to 5 smut balls, but not in excess of a quantity equal to 30 smut balls of average size.*

Smutty. *Kamut that contains, in a 250-gram portion, smut balls, portions of smut balls, or spores of smut in excess of a quantity equal to 30 smut balls of average size.*

Basis of Determination. Determine "Light smutty" on the sample as a whole (odor only) or on a dockage-free portion of 250 grams. Determine "Smutty" on a dockage-free portion of 250 grams. Smut balls apply in the determination of the special grades "Light smutty" or "Smutty" but also function as foreign material.

Certification. If present, record the word "Smutty" on the work record and certificate. Upon request, show the odor (in the case of light smutty) or the number of smut balls.

18. TREATED KAMUT

Kamut that has been scoured, limed, washed, sulfured, or treated in such a manner that the true quality is not reflected.

Basis of Determination. Determine treated on the basis of the dockage-free work sample. If at the time of sampling, odor or other conditions indicate that the Kamut has been treated, place a portion of the sample in an airtight container for examination in the laboratory.

Three qualities are associated with natural, untreated Kamut:

a. A natural, live, healthy feeling;

b. A bright, attractive appearance; and

c. A natural Kamut odor.

Any artificial or mechanical process which tends to impair or conceal the true quality of Kamut, causes Kamut to grade treated. Such processes include:

Scoured or Washed. Kamut which has been scoured or washed, in whole or in part, so that the true quality of the Kamut is not reflected, and which meets one or more of the following conditions, is considered treated and graded as scoured or washed.

a. Presents a blistered and/or abraded bran coat appearance as a result of treatment;

b. Has a so-called laundry odor or wet smut odor;

c. A dull, lifeless appearance or feeling; or

d. Has the appearance of having been scoured for the purpose of increasing the test weight per bushel.

Sulfured Kamut. Kamut which, in whole or in part, has been bleached with any bleaching agent is considered treated and graded as sulfured.

Limed Kamut. The presence of lime in a sample of Kamut (which has not been scoured) is considered as evidence that the lime was added for the purpose of covering up some defect in the Kamut. Such Kamut is considered treated and graded as limed.

Treatment for Infestation. Kamut which has been treated to exterminate live weevils or other live insects, is not considered treated unless the Kamut has the characteristics of treated Kamut as described above.

Certification. When applicable, show "Treated," along with the type of treatment.

19. SHRUNKEN AND BROKEN KERNELS

All matter that passes through a 0.064 x 3/8 oblong-hole sieve after sieving according to procedures prescribed in FGIS instructions.

Basis of Determination. Determine shrunken and broken kernels on a dockage-free portion of 250 grams using one of the following methods:

a. Mechanical Sieving Method.

(1) Mount the sieve and the bottom pan on the mechanical sieve shaker.

(2) Set the stroke counter for 30 strokes.

(3) Follow the procedure described in Book II, Chapter 1, Section 1.13, "Mechanical Sieve Shaker."

(4) All material passing through the sieve is considered shrunken and broken kernels. Return the material lodged in the perforations to the Kamut which remained on top of the sieve.

b. Hand Sieving Method.

(1) Mount the sieve on a bottom pan.

(2) Place the 250-gram portion in the center of the sieve.

(3) Hold the sieve level in both hands with elbows close to the body and the sieve perforations parallel to the direction of movement.

(4) In a steady motion, move the sieve from left to right approximately 10 inches and then return from right to left.

(5) Repeat this operation 30 times.

(6) All material passing through the sieve is considered shrunken and broken kernels. Return the material lodged in the perforations to the Kamut which remained on top of the sieve.

Determine shrunken and broken kernels prior to analyzing the sample for heat-damaged kernels, damaged kernels, foreign material, and contrasting classes.

Certification. Record the percentage of shrunken and broken kernels on the certificate to the nearest tenth percent.

20. DAMAGED KERNELS

Kernels, pieces of Kamut seeds, and other grains that are badly ground-damaged, badly weather-damaged, diseased, frost-damaged, germ-damaged, heat-damaged, insect-bored, mold-damaged, sprout-damaged, or otherwise materially damaged.

Basis of Determination.

Damaged Kernels. Determine damaged kernels on a dockage-free and shrunken and broken-free portion of 15 grams.

Types of Kamut damage.

a. Black Tip Fungus. Kernels affected by black tip fungus to the extent that the fungus growth is on the germ and extends into the crease of the kernel. (Reference: Interpretive Line Slide No. W-1.0.)

b. Heat-Damaged Kernels. Kernels materially discolored and damaged by heat. It is necessary, in most cases, to cut the kernels and make a cross-section analysis to determine if the color is reddish-brown, mahogany, or creamy. (Reference: Interpretive Line Slide Nos. W-6.0 for heat-damaged (Durum) and W-6.1 for heat-damaged (other than Durum).)

c. Blight or Scab. Kernels with a dull, lifeless, and chalky appearance resulting from disease. The germ and crease may also have a moldy appearance. Kernels which are not damaged enough to function as scab damage should be examined further for moldy germs and creases. (Reference: Interpretive Line Slide No. W-2.0.)

d. Frost-Damaged Kernels (Blistered). Kernels with distinct frost blisters extending around the back of the kernel and into the crease. (Reference: Interpretive Line Slide No. W-3.0.)

e. Frost-Damaged Kernels (Candied). Kernels that have a distinctly wax-like or candied appearance. Frost-damaged (candied) kernels can be greenish, greenish-yellow, brownish, or blackish in color. They frequently have dark stripes showing through the sides of the kernels. (Reference: Interpretive Line Slide No. W-3.1.)

f. Frost-Damaged Kernels (Flaked). Kernels that have a slightly flaked-off bran coat due to frost. Evidence of frost must be present. Do not confuse flaked-by-frost with kernels which have had the bran coat rubbed off because of handling. (Reference: Interpretive Line Slide No. W-3.3.)

g. Frost-Damaged Kernels (Discolored Black or Brown). Kernels which are discolored black or brown and/or have a bleached or blistered appearance with dark lines showing through both sides. (Reference: Interpretive Line Slide No. W-3.2.)

h. Germ-Damaged Kernels (Mold). Kernels which have mold in the germ. The bran coat covering the germ should be removed carefully as scraping the bran coat too deep could remove the mold. (Reference: Interpretive Line Slide No. W-4.1.)

i. Green Damage (Immature). Kernels which are intense green (immature) and without any yellow appearance. (Reference: Interpretive Line Slide No. W-5.0.)

j. Mold-like Substance. Whole kernels of Kamut which are 50 percent or more covered and pieces of kernels which are discolored and covered with a mold-like substance.

k. Other Damage. Kernels with cracks, breaks, or chews and which contain mold or fungus. (Reference: Interpretive Line Slide No. W-7.0.)

l. Sprout-Damaged Kernels. Kernels with the germ end broken open from germination exhibiting sprout or from which the sprouts have been broken off. (Reference: Interpretive Line Slide Nos. W-8.0 and W-8.1.)

m. Insect-Bored Kernels. Kernels that have been bored or tunneled by insects. (Reference: Interpretive Line Slide No. W-9.0.)

n. Germ-Damaged Kernels (Sick). Kernels damaged as a result of heat but are not materially discolored. Sick kernels should be scraped very carefully to avoid the loss of discoloration and/or "popping" or removal of the germ. (Reference: Interpretive Line Slide No. W-4.0 and W-4.2.)

Bleach Method. The bleaching procedure that uses the S/J mixer may be used as an alternate method for determining germ-damaged Kamut. 1/ Prior to bleaching, remove all types of damaged kernels, except germ-damaged, from the representative portion and calculate the percentage. The portion, minus the other types of damaged kernels, can now be bleached. After bleaching, weigh the bleached portion, remove the germ-damaged kernels, and calculate the percentage.

Bleach Procedure.

a. Place 15 grams (13.5 to 16.5) of Kamut in the mixing jar. If the amount of "other damage" present in the original 15-gram portion reduces the weight of the sample to be bleached below 13.5 grams, an additional 15-gram portion must be analyzed for germ damage. It is not necessary to remove the other damaged kernels from the second portion before bleaching.

b. Add 15 grams of potassium hydroxide (KOH) pellets.

c. Add 20 ml of bleach.

d. Set stirring head on jar, place jar on mixer, and mix for 3 minutes.

e. Pour the Kamut from the mixing jar into the tea strainer and rinse with warm tap water to remove the KOH bleach solution.

f. After rinsing, lightly tap the tea strainer against the edge of the sink to remove the excess water. Gently press the bottom of the tea strainer on a dry paper towel to remove any additional water.

1/ For equipment and materials, see Book II, Section 1.17 of the Grain Inspection Handbook.

g. Place the Kamut on the dryer sieve and dry for 1 to 1 ½ minutes or until the kernels are not tacky when picked up with a pair of tweezers.

h. Remove the Kamut from the drying sieve and weigh. The kernels with germ damage should now be readily apparent. If not, it is permissible to carefully lift the bran coat from over the germ area to examine for damage.

Any deviation from the previously described procedures may result in improperly bleached Kamut and could produce a hazardous condition. Further,

- Safety equipment should be worn while the bleach operation is in progress and the lab area thoroughly cleaned once bleaching is complete.

- Accidental spills should first be neutralized with vinegar before the liquid is wiped up.

- Avoid mixing the KOH bleach solution used in this test with chemical reagents or waste solutions associated with other tests.

- When disposing of the KOH bleach solution, wash the solution down the sink drain with large quantities of water.

Computing Damaged Kernels. Obtain the percentage of total damaged kernels by adding the percentage of germ-damaged kernels and other damaged kernels. Add the results, as shown in the following example, in hundredths (disregard thousandths) and round the sum to the nearest tenth percent.

STEP 1. Weight of other type damaged kernels ÷ weight of sample before bleaching x 100 = percent of other type damaged kernels.

STEP 2. 100 percent - percentage of other type damaged kernels ÷ 100 = change of base factor.

STEP 3. Weight of germ-damaged portion ÷ weight of damaged portion after bleaching x 100 = percent of germ-damaged kernels.

STEP 4. Percentage of germ-damaged kernels x change of base factor = adjusted percent of germ-damaged kernels.

STEP 5. Percent of other damaged kernels + adjusted percent of germ-damaged kernels = percent of damaged kernels.

Example:

Original weight of damaged portion	=	16.10 grams
Weight of other type damaged kernels	=	2.40 grams
Sample weight before bleaching	=	13.70 grams
Sample weight after bleaching	=	11.95 grams
Weight of germ-damaged kernels	=	4.33 grams

STEP 1. (2.40 ÷ 16.10) x 100 = 14.90 percent of other type damaged kernels.

STEP 2. (100 percent - 14.90 percent) ÷ 100 percent = 0.85 change of base factor.

STEP 3. (4.33 ÷ 11.95) x 100 = 36.23 percent of germ-damaged kernels.

STEP 4. 0.85 x 36.23 = 30.79 adjusted percent of germ-damaged kernels.

STEP 5. 14.90 + 30.79 = 45.69 (rounded to 45.7) percent damaged kernels.

Certification.

a. Damaged Kernels. Record the percent of damaged kernels on the certificate to the nearest tenth percent.

b. If an applicant requests that the number of insect-damaged kernels be reported on the certificate, use the approved statements in Book IV, Chapter 3, Section 3.5.

21. HEAT-DAMAGED KERNELS

Kernels, pieces of Kamut kernels, and other grains that are materially discolored and damaged by heat that remain in the sample after the removal of dockage and shrunken and broken kernels.

Basis of Determination. Determine heat-damaged kernels on a dockage-free and shrunken and broken-free portion of 50 grams. (Reference: Interpretive Line Slide Nos. W-6.0 and W-6.1.)

Certification. Record the percent of heat-damaged kernels on the certificate to the nearest tenth percent.

22. FOREIGN MATERIAL

All matter other than Kamut that remains in the sample after the removal of dockage and shrunken and broken kernels.

Basis of Determination. Determine foreign material on a dockage-free and shrunken and broken-free portion of 50 grams.

Other grains including wheat, oat groats, hull-less oats, glumes on threshed or unthreshed kernels, and all matter other than Kamut, are considered foreign material and removed from the portion. Remove the glumes from the kernels of Kamut and add to the foreign material.

Certification. Record the percent of foreign material on the certificate to the nearest tenth percent.

23. DEFECTS

Damaged kernels, foreign material, and shrunken and broken kernels.

Basis of Determination. Determine defects on the sum of damaged kernels, foreign material, and shrunken and broken kernels.

A percentage for defects cannot be shown when only one or two of the factors defined as defects have been determined.

Certification. Record the percent of defects on the certificate to the nearest tenth percent.

When the percentages for damaged kernels, shrunken and broken kernels, and foreign material are added together and the total exceeds 100 percent, adjust the percentage of defects by adjusting damaged kernels (total).

/s/David Orr

David Orr, Director
Field Management Division

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TITLE:

Directive

INSPECTION OF KAMUT

SUMMARY OF CHANGE(S) OR REMARKS:

This directive establishes uniform procedures for the factor analysis of Kamut seed under the Agricultural Marketing Act of 1946, as amended (AMA).

CLEARANCES

NAME	SIGNATURE	DATE	
		CONCUR	NONCONCUR
Dave Grady			
John Giler			
John Good			
David Orr			
Neil Porter			
Ralph Regan			
Steve Tanner			
Robert E. Soderstrom			
George Wollam			
Paul Weller (AAGIWA)			

REASON(S) FOR NONCONCURRENCE: